REMARKS

Reconsideration of the Final Office Action of August 9, 2002 is respectfully requested. Entry of the above amendments for the purpose of placing the case in immediate condition for allowance is respectfully requested.

Applicants would like to express their appreciation to the courtesies extended the undersigned Applicant's representative in the telephonic interview of December 9, 2002 with Examiner.

In the present amendment, independent claims 15, 18 and 30 have been presented and are submitted to place the application in immediate condition for allowance for the reasons discussed during the interview. Also, post final action entry of these amendments is respectfully submitted to be applicable in the present case from the standpoint outlined in MPEP § 706.07 of "[b]efore final rejection is in order a clear issue should be developed between the examiner and the applicant" which was precluded to some extent by the points raised below concerning the non-applicability of one of the asserted layers which blurred the issues and the noted questions as to which material is being referred to due to possible reference number inconsistencies. Accordingly withdrawal of the final rejection and entry of the accompanying amendments is respectfully requested.

During this interview the features of the present invention were described and the manner in which claimed subject matter was considered not to be disclosed or suggested in the applied prior art, some of which discussion is repeated below.

In the Office Action claims 15-25 and 30 were rejected as being anticipated by Fukui et al. based on either of the embodiments of Figures 41, 42 or 43. A review of the referenced

subject matter reveals that the rejected claims contain features not disclosed or suggested in Fukui et al.

The figure group of Figures 39-43 (which includes the above noted relied upon figures 41, 42 and 43) show schematic illustrations of stretch sensitive electroconductive devices with at least one surface of the stretch sensitive electroconductive device under an insulating state (e.g., protection against electrode contact relative to a user's skin). The stretch sensitive electroconductive device includes a woven or knitted fabric having electrically insulating fibers and electrically insulating fibers with applied electroconductive material (Col. 11, 22-31). As further described in Column 13, a deformation sensitive electroconductive sheet is laminated on at least one surface with an elastomer including elastomers with electroconductive fillers to provide a pressure sensitive electroconductive elastomer. Column 15, lines 6-13 indicate that -

> in order to utilize the deformation sensitive electroconductive knitted or woven fabric detecting compression deformation, namely the pressure sensitive electroconductive knitted or woven fabric as the sensor, electrodes are provided on both surfaces of said knitted or woven fabric and the change in electrical resistance **between** the above electrodes which occurs by compression deformation is detected.

Thus the active zone of Fukui is limited to the intermediate stretch region between the two electrodes and not in the sandwich end regions as is apparent in the use of the non-compression sensing, rigid U-shaped end electrodes such as in Figures 41-43. Thus, in Fukui, the sandwich region would not be considered by one of ordinary skill in the art as representing the active zone of the stretch fabric which has its fibers varying in resistivity in the intermediate area of the stretch fabric.

This arrangement is unlike the present invention featuring electrodes arranged on an insulating fabric (see page 6 for background discussion in this regard) with a layer of semiconducting material in intimate contact with the electrodes and arranged on top of the electrodes in an active zone. In this way compression or bending of the layer is sensed by the resistance deviation relative to the sandwich arrangement of the flexible insulating fabric, electrodes arranged thereon and semiconducting material arranged on top of the electrodes and in intimate contact with the electrodes. As further described in the background of the present invention this arrangement of the present invention provides a passenger detector that is particularly adept at picking up pressure differentials relative to a passenger when, for example, a passenger is sitting in a passenger seat, and avoids the prior art problems of allowing moisture/humidity and the like to degrade the electrodes (note the intimate contact of the semiconductor material and electrodes arranged on the flexible fabric features of the present invention).

Amongst the figure group of Figures 39-43 of Fukui, Figures 39 and 42 provide cross-sectional views illustrating the component layers (the other Figures not being specifically clear as to the make up of the illustrated stretch sensitive electroconductive device). Figure 39 illustrates a sandwich arrangement represented by A) an elastomer insulation layer (71)/ B) upper electroconductive plate of the U-shaped electrode (74)/ a C) first layer of electroconductive resin (75) D) an insulation breakdown film (72) / E) a stretch sensitive electroconductive sheet 73 (e.g., a woven fabric having insulated with non-insulated fiber material such as shown in Figures 1 and 3) F) an unidentified layer/ G) a non-referenced, presumed for this response as being a second layer of electroconductive resin and H) an underlying second electrode plate section of the U-shaped electrode. This arrangement is

designed to convey resistance variations (e.g., an increase in conductive fiber to fiber contact due to the tension between the electrodes) in the active zone of the stretch material (where the material stretches between the clamping electrodes as outlined above) and this is not a case where the compression, bending level, etc of the semiconducting material on top of the electrodes in the active zone supported on the insulating fabric is influential.

Figure 41 shows stretch sensitive electronconducting device with electrodes (78') adhered on one side to an electronically insulating elastomer 71'.

Figure 42 shows A) upper electroconductive plate of the U-shaped electrode (74')/ B) first layer of electroconductive resin (75')/ C) an insulation breakdown film (72') / D) a stretch sensitive electroconductive sheet (e.g., a woven fabric having insulated and non-insulated fiber material as shown in Figures 1 and 3) E) an electrically insulating elastomer sheet (79)/ F) a non-referenced, presumed second layer of electroconductive resin and G) an underlying second electrode plate section of the U-shaped electrode. A pair of insulating film sheets are provided over the bottom plates of the two electrodes in this figure.

Figure 43 is an illustration of a stretch sensitive electroconductive device with stretchable cloths stitched at certain locations to both surfaces so as to be stretchable with the stretch layer. The make up of the stretch sensitive electronconducting device is not presented in detail in Figure 43.

In the Office Action there is indicated "the semiconductive sheets 73' are insulating fabrics having the semiconductive portion coated thereon so that the insulating fabric is the fabric portion of 73' and the semiconductive portion is either of 72' or the coated portion of 73').

The assertion that the insulating layer has "the semiconductive portion coated thereon" is respectfully submitted to be in error as it is the combination of the conductive(coating)/insulative

material (non-conductive fibers) which represents the resistance varying material of Fukui et al. Thus it cannot be said the conductive coating represents a semiconductive coating as alluded to in the Office Action.

The second portion of the above noted rejection discussion refers to the insulation breakdown film as representing the semiconducting material of the claimed invention with that material and that "the portion 76' is in intimate contact with **fabric 72'** or 73'". This reference to "fabric 72'" is not understood as the layer 72' is not described as being of a fabric material. The rejection also sets for that "each [interpreted as 72' and 73'] are on top of electrode structures – the portion below 79".

When considering the fabric layer with conductive upper coating portion, and breakdown layer applied directly thereto, it cannot be said that the electrodes are "arranged on" or "applied on" the insulation fabric.

For example, claim 15 includes the above noted differentiating arrangement featuring a passenger detector having two electrode structures arranged on a supporting insulating fabric and a layer of an internal resistance varying semiconducting material arranged on top of the electrodes in an active zone of said detector and in intimate contact with the electrodes.

Relative to these additional figures of Fukui they each suffer from the same deficiencies as discussed above as to the semiconducting material being arranged on top of the electrodes in the active zone of the passenger detector which is not shown or described in the stretch device of Fukui et al.

Thus, following a thorough review of Fukui, none of the figures in the figure group 39-43 show a relationship which features the above described at least two electrodes "arranged on" or the current similar wording in the accompanying amended claims 15, 18 and 30 of "applied on"

such that the lower surfaces of those electrodes are in contact with the insulating fabric, and with the semiconducting layer being applied on top of the electrodes so as to be in intimate contact with the upper surfaces of those electrodes. This can be seen from a review of the above described stack arrangements outlined above for what is seen in Figures 39-43 which fail to show the claimed invention with the applied on/contacting materials/arrangement.

Furthermore, as to claims 18 and 30, there is reference to a passenger detector having a plurality of active zones and at least two electrodes arranged on an insulating support at a distance from each other. A layer of semiconducting material is further provided and that layer of semiconducting material is divided into several zones with each of the zones of the layer of semiconducting material being in one of the active zones and arranged on the electrodes and in intimate contact with the electrodes.

As described above, Fukui fails to disclose a semiconducting material that is divided into several zones within one active zone of the passenger detector and with each of the several zones being in intimate contact with the electrode structures. Rather any active zones in Fukui lie between the electrodes as can be seen by the Figure 31 "glove" example for sensing finger bends relative to the stretched material between the electrodes.

Claims 15, 18 and 30 were also rejected as being anticipated by Kikuo et al. These rejections are also respectfully traversed.

Kikuo et al. (US Patent 5,010,774) discloses in Fig. 22 the use of a distribution type tactile sensor according to figs 20 and 21 as a passenger detector (see description col. 14, lines 14 to 17). "A plurality of the unit sensors 10 shown in FIG. 21 are set in a chessboard arrangement on the back cushion 79 of the chair 78" (see col. 14, line 67 to col. 15, line 1). Each unit sensor, which is used in Kikuo's seat detector, comprises a pressure sensitive conductive

rubber 3 sandwiched between electrodes Eo and Ep (see description col. 14, lines 18 to 19 together with Fig.21). More specifically, the unit sensor 10 of Fig. 21 comprises a substrate plate 17 and an electrode Ep printed onto said substrate plate 17. A layer of pressure sensitive conductive rubber 3 is disposed onto the electrode Ep and a second electrode Eo is laminated onto the layer of pressure sensitive conductive rubber 3. Kikuo fails to teach a passenger detector in which two electrodes are arranged at a certain distance from another on an insulating fabric. Furthermore Kikuo does not teach the layer of semiconducting material being arranged on top of the two electrodes. In other words, in the rejection there is reference to Figure 21 showing "**electrodes** Eo and the semiconductive material 3. However, each unit 10 represents a unit sensor having **an electrode** plate Eo juxtaposed to the layer of semiconductive material 3 with the combination encased in the urethane rubber sealing covering which sealing casing is adhered to the seat via the external adhesive sheet material. Thus there cannot be said to be "**a layer** of semiconducting material being arranged on top of said electrode **structures** and in intimate contact with said electrode structures.

This deficiency in Kikou carries over as well when considering the features of claim 18 where said layer of semiconducting material has multiple zones within an active zone of the detector and with each of the multiple zones of said layer of semiconducting material being arranged on said electrode structures and in intimate contact with said electrode structures which are arranged on the flexible support of insulating material.

The Office Action further includes a rejection of claims 15, 19-20 and 23 under 35 U.S.C § 103 coupled with an assertion that it would have been obvious to replace the support 1 of Kirby with a fabric based on the disclosure in Fukui of providing an applied electroconductive material to a fabric. This rejection is respectfully traversed as failing to establish a prime facie case of

obviousness as the mere use of a stretch sensitive coating in the context of Fukui et al does not provide a teaching for use in the different environment of Kirby. The indication of the noted motivation of providing for the detection of minute changes has not been established as pertaining to the fabric, as minute changes can just as readily be determinable with the substrates described in Kirby. Moreover, Kirby specifically discloses (e.g., see Col. 4, lines 45 plus) that a highly smooth surface is important in the context of that invention thus removing a fabric as a suitable alternative to the described smooth surface support 1.

Independent claims 18 and 30 also include the above noted clarifying language as to "arranged on" with the "applied on" language and a clarification as to the relative surfaces of the electrodes and the contact relationship. Accordingly, for the reasons set forth above, each of the independent claims 15, 18 and 30 are submitted to be in immediate condition for allowance.

Also, the dependent claims are respectfully submitted to be allowable over the prior art based on their dependency on claims discussed above. Also the assertion in the Office Action that the material outlined in Fukui et al. is understood in the art to be "ink" is respectfully submitted not to be supported under the present record, and it is requested that there be shown in the next action evidence of this assertion.

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Applicants respectfully submit that this Amendment and the above remarks obviate all of the outstanding rejections in this case, thereby placing the application in condition for immediate allowance. Allowance of this application is earnestly solicited. If for any reason an addition phone discussion will facilitate the prosecution of this case, the Examiner is invited to telephone the undersigned.

If any additional fees are due in connection with the filing of this Amendment please charge such fees to our Deposit Account No. 02-4300.

Respectfully submitted,

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MARKED-UP PREVIOUS VERSION OF THE CLAIMS

15. (Amended) Passenger detector comprising

a flexible support made of an insulating fabric,

at least two electrode structures [arranged] applied on said insulating fabric at a distance from each other, each of said electrode structures comprising a lower surface and an opposing upper surface, said lower surface being in contact with said insulating fabric, and

a layer of semiconducting material [arranged] applied on top of said electrode structures in an active zone of said detector, said layer of semiconducting material being arranged in intimate contact with said upper surfaces of said electrode structures and having an internal resistance that varies with a deformation of said layer.

18. (Amended) Passenger detector having a plurality of active zones, said detector comprising a flexible support made of an insulating material,

at least two electrode structures [arranged] applied on said flexible support at a distance from each other, each of said electrode structures comprising a lower surface and an opposing upper surface, said lower surface being in contact with said insulating material, and

a layer of semiconducting material, said layer of semiconducting material having an internal resistance that varies with a deformation of said layer, said layer of semiconducting material being divided into several zones, each of said zones being [arranged] applied in one of said active zones of said detector on said upper surfaces of said electrode structures and in intimate contact with said electrode structures.

30. (Amended) Passenger detector having a plurality of active zones, said detector comprising a flexible support made of an insulating fabric,

at least two electrode structures [arranged] applied on said insulating fabric at a distance from each other, each of said electrode structures comprising a lower surface and an opposing upper surface, said lower surface being in contact with said insulating fabric, and

a layer of semiconducting material, said layer of semiconducting material having an internal resistance that varies with a deformation of said layer, said layer of semiconducting material being divided into several zones, each of said zones being [arranged] applied in one of said active zones of said detector on said upper surfaces of said electrode structures and in intimate contact with said electrode structures.